



National Textile University

Department of Computer Science

Subject:

Operating System

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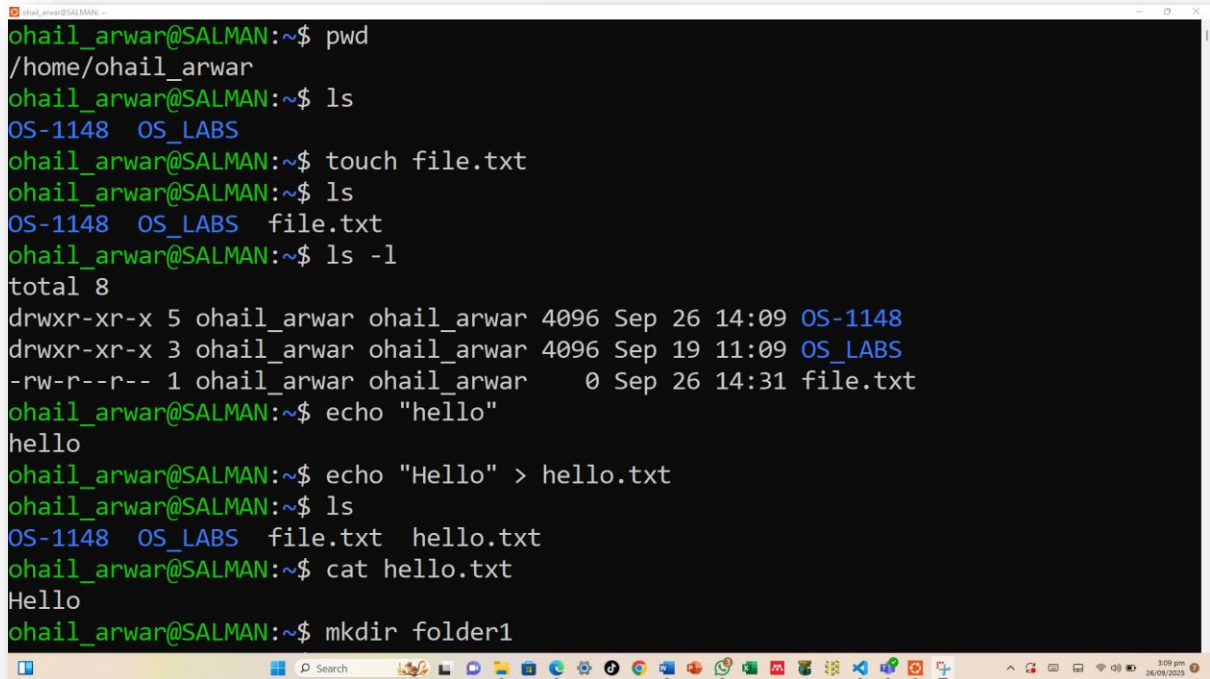
LINUX Basics and Introduction

Part A: Linux Environment Orientation

1.1 Understanding the Linux Environment

Hands on Activity

- **pwd:** prints the current working directory or the folder we are in.
- **ls:** lists the files and directories in the current directory.
- **touch:** creates a new empty file if it doesn't already exist or also updates the data of an existing file.
- **ls -l:** lists files and directories in long format, also showing details like size, date and modification time.
- **echo "hello":** prints the hello text on terminal.
- **echo "hello" > hello.txt:** creates a new file if it does not already exist and writes hello inside it.
- **mkdir folder1:** creates a new directory named folder1 in current location.



```
ohail_arwar@SALMAN:~$ pwd
/home/ohail_arwar
ohail_arwar@SALMAN:~$ ls
OS-1148  OS_LABS
ohail_arwar@SALMAN:~$ touch file.txt
ohail_arwar@SALMAN:~$ ls
OS-1148  OS_LABS  file.txt
ohail_arwar@SALMAN:~$ ls -l
total 8
drwxr-xr-x 5 ohail_arwar ohail_arwar 4096 Sep 26 14:09 OS-1148
drwxr-xr-x 3 ohail_arwar ohail_arwar 4096 Sep 19 11:09 OS_LABS
-rw-r--r-- 1 ohail_arwar ohail_arwar   0 Sep 26 14:31 file.txt
ohail_arwar@SALMAN:~$ echo "hello"
hello
ohail_arwar@SALMAN:~$ echo "Hello" > hello.txt
ohail_arwar@SALMAN:~$ ls
OS-1148  OS_LABS  file.txt  hello.txt
ohail_arwar@SALMAN:~$ cat hello.txt
Hello
ohail_arwar@SALMAN:~$ mkdir folder1
```

- **cd folder1/:** changes current directory to folder1 if it exists.
- **mkdir -p folder1/folder2:** creates folder1 if it does not exist and inside it creates another folder folder2.
- **ls folder1/:** lists all files and directories inside folder1.
- **mkdir directory:** creates a new directory named directory in current location.

```
ohail_arwar@SALMAN:~$ ls
OS-1148 OS_LABS file.txt folder1 hello.txt
ohail_arwar@SALMAN:~$ cd folder/
-bash: cd: folder/: No such file or directory
ohail_arwar@SALMAN:~$ cd folder1/folder2
-bash: cd: folder1/folder2: No such file or directory
ohail_arwar@SALMAN:~$ cd folder1/
ohail_arwar@SALMAN:~/folder1$ mkdir -p folder1/folder2
ohail_arwar@SALMAN:~/folder1$ ls
folder1
ohail_arwar@SALMAN:~/folder1$ ls folder1
folder2
ohail_arwar@SALMAN:~/folder1$ ls folder1/
folder2
ohail_arwar@SALMAN:~/folder1$ cd folder1/
ohail_arwar@SALMAN:~/folder1/folder1$ ls
folder2
ohail_arwar@SALMAN:~/folder1/folder1$ mkdir directory
ohail_arwar@SALMAN:~/folder1/folder1$ ls
directory folder2
```

- **mkdir foldzzz:** creates a new directory named foldzzz in current location.
- **ls fold:** tries to list the contents of a directory named fold.
- **rmdir folder2/:** deletes the directory named folder2.
- **rm -r directory/:** it deletes the directory and all its contents.

```
ohail_arwar@SALMAN:~/folder1/folder1$ mkdir foldzzz
ohail_arwar@SALMAN:~/folder1/folder1$ ls
directory folder2 foldzzz
ohail_arwar@SALMAN:~/folder1/folder1$ ls fold
ls: cannot access 'fold': No such file or directory
ohail_arwar@SALMAN:~/folder1/folder1$ LS fold
LS: command not found
ohail_arwar@SALMAN:~/folder1/folder1$ ls
directory/ folder2/ foldzzz/
ohail_arwar@SALMAN:~/folder1/folder1$ ls fold
folder2/ foldzzz/
ohail_arwar@SALMAN:~/folder1/folder1$ rmdir folder2/
ohail_arwar@SALMAN:~/folder1/folder1$ ls
directory foldzzz
ohail_arwar@SALMAN:~/folder1/folder1$ rm -r directory/
ohail_arwar@SALMAN:~/folder1/folder1$ cd
ohail_arwar@SALMAN:~$ mkdir recycleBin
ohail_arwar@SALMAN:~$ cd folder1/
ohail_arwar@SALMAN:~/folder1$ ls
folder1
```

- **vim hello.txt:** opens the file hello.txt in vim editor.
- **Cat hello.txt:** displays the contents of hello.txt directly in terminal.
- **Wc hello.txt:** shows the word count of file hello.txt.

- **Rm hello.txt:** deletes the file hello.txt permanently.
- **Cd ..:** moves you one directory up.

```
ohail_arwar@SALMAN:~/folder1$ cd folder1/
ohail_arwar@SALMAN:~/folder1/folder1$ cd foldzzz
ohail_arwar@SALMAN:~/folder1/folder1/foldzzz$ ls
ohail_arwar@SALMAN:~/folder1/folder1/foldzzz$ vim hello.txt
ohail_arwar@SALMAN:~/folder1/folder1/foldzzz$ ls
hello.txt
ohail_arwar@SALMAN:~/folder1/folder1/foldzzz$ cat hello.txt
hello my name is eman
ohail_arwar@SALMAN:~/folder1/folder1/foldzzz$ wc hello.txt
 1  5 22 hello.txt
ohail_arwar@SALMAN:~/folder1/folder1/foldzzz$ rm hello.txt
ohail_arwar@SALMAN:~/folder1/folder1/foldzzz$ rm -r folder1
rm: cannot remove 'folder1': No such file or directory
ohail_arwar@SALMAN:~/folder1/folder1/foldzzz$ rm -r folder/
rm: cannot remove 'folder/': No such file or directory
ohail_arwar@SALMAN:~/folder1/folder1/foldzzz$ rm -r folder1/
rm: cannot remove 'folder1/': No such file or directory
ohail_arwar@SALMAN:~/folder1/folder1/foldzzz$ cd
ohail_arwar@SALMAN:~$ cd ..
ohail_arwar@SALMAN:/home$ cd
```

- **Cd mnt/:** changes the current directory to mnt.
- **Cd c:** moves to c drive.
- **Ls:** list all files of current directory.

```
ohail_arwar@SALMAN:~$ cd /
ohail_arwar@SALMAN:/$ ls
bin          boot      etc       init      lib.usr-is-merged  lost+found  mnt      proc   run
bin.usr-is-merged  dev      home     lib       lib64          media      opt      root   sbi
ohail_arwar@SALMAN:/$ cd mnt/
ohail_arwar@SALMAN:/mnt$ ls
c  wsl  wslg
ohail_arwar@SALMAN:/mnt$ cd c
ohail_arwar@SALMAN:/mnt/c$ ls
ls: cannot access 'DumpStack.log.tmp': Permission denied
ls: cannot access 'hiberfil.sys': Permission denied
ls: cannot access 'pagefile.sys': Permission denied
ls: cannot access 'swapfile.sys': Permission denied
'$Recycle.Bin'      'National Instruments Downloads'  Recovery
'$SysReset'         'OneDriveTemp'                    SALMAN
'$WinREAgent'       'PerfLogs'                         'System Volume Informa
'Documents and Settings' 'Program Files'                    UkLog.dat
DumpStack.log.tmp    'Program Files (x86)'              Users
Intel               ProgramData                         Windows
ohail_arwar@SALMAN:/mnt/c$ cd username
```

- **Cd Users/:** moves to Users
- **Cd home/:** moves to home directory.

```
ohail_arwar@SALMAN:/mnt/c$ cd Users/
ohail_arwar@SALMAN:/mnt/c/Users$ cd
ohail_arwar@SALMAN:~$ cd /
ohail_arwar@SALMAN:/$ ls
bin                boot  etc  init  lib.usr-is-merged  lost+found
bin.usr-is-merged  dev   home lib   lib64              media
ohail_arwar@SALMAN:/$ cd home/
ohail_arwar@SALMAN:/home$ ls
ohail_arwar
ohail_arwar@SALMAN:/home$ cd ohail_arwar
ohail_arwar@SALMAN:~$ ls
OS-1148  OS_LABS  file.txt  folder1  hello.txt  recycleBin
ohail_arwar@SALMAN:~$ ls -a
.          .bash_logout  .dotnet      .lessshst  .profile
..         .bashrc       .gitconfig   .local     .ssh
.bash_history .cache        .landscape   .motd_shown .sudo_as_admin
```

- **Ls -al:** lists all files in long format.

```
ohail_arwar@SALMAN:~$ ls -al
total 80
drwxr-x--- 12 ohail_arwar ohail_arwar 4096 Sep 26 14:46 .
drwxr-xr-x  3 root       root       4096 Sep 18 23:53 ..
-rw-r----- 1 ohail_arwar ohail_arwar 3370 Sep 23 23:35 .bash_history
-rw-r--r--  1 ohail_arwar ohail_arwar  220 Sep 18 23:53 .bash_logout
-rw-r--r--  1 ohail_arwar ohail_arwar 3771 Sep 18 23:53 .bashrc
drwx----- 3 ohail_arwar ohail_arwar 4096 Sep 19 00:15 .cache
drwxr-xr-x  3 ohail_arwar ohail_arwar 4096 Sep 19 00:17 .dotnet
-rw-r--r--  1 ohail_arwar ohail_arwar   57 Sep 23 21:58 .gitconfig
drwxr-xr-x  2 ohail_arwar ohail_arwar 4096 Sep 19 00:02 .landscape
-rw-r----- 1 ohail_arwar ohail_arwar   20 Sep 23 21:59 .lessshst
drwxr-xr-x  3 ohail_arwar ohail_arwar 4096 Sep 23 23:20 .local
-rw-rw-r--  1 ohail_arwar ohail_arwar   0 Sep 26 14:09 .motd_shown
-rw-r--r--  1 ohail_arwar ohail_arwar  807 Sep 18 23:53 .profile
drwx----- 3 ohail_arwar ohail_arwar 4096 Sep 23 23:28 .ssh
-rw-r--r--  1 ohail_arwar ohail_arwar   0 Sep 18 23:55 .sudo_as_admin_successful
-rw-r----- 1 ohail_arwar ohail_arwar  859 Sep 26 14:46 .viminfo
drwxr-xr-x  5 ohail_arwar ohail_arwar 4096 Sep 19 00:16 .vscode-server
drwxr-xr-x  5 ohail_arwar ohail_arwar 4096 Sep 26 14:09 OS-1148
drwxr-xr-x  3 ohail_arwar ohail_arwar 4096 Sep 19 11:09 OS_LABS
-rw-r--r--  1 ohail_arwar ohail_arwar   0 Sep 26 14:31 file.txt
drwxr-xr-x  3 ohail_arwar ohail_arwar 4096 Sep 26 14:37 folder1
-rw-r--r--  1 ohail_arwar ohail_arwar   6 Sep 26 14:34 hello.txt
drwxr-xr-x  2 ohail_arwar ohail_arwar 4096 Sep 26 14:41 recycleBin
drwxr-xr-x  2 ohail_arwar ohail_arwar 4096 Sep 26 14:41 recycleBin
```

